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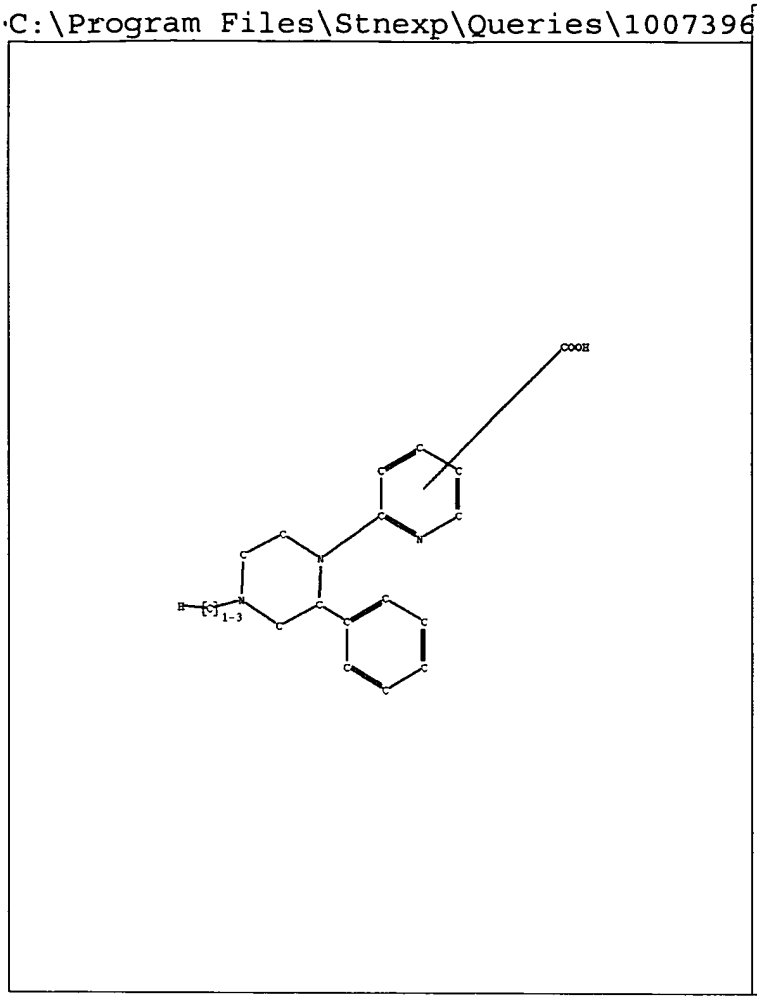

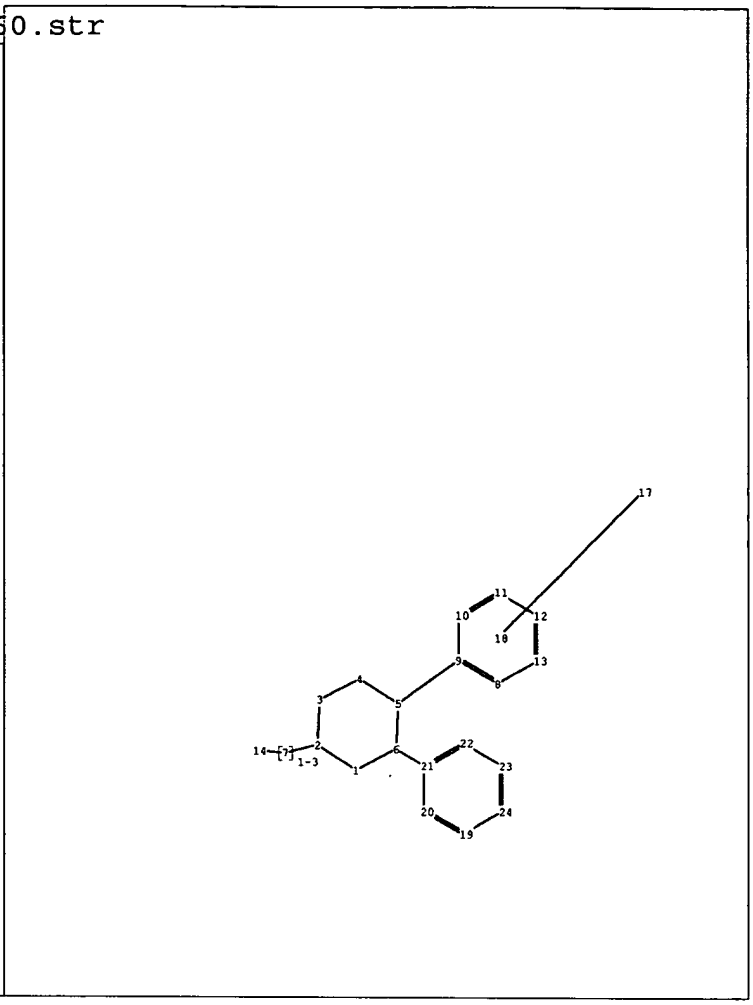

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7 14 17
ring nodes :
1 2 3 4 5 6 8 9 10 11 12 13 19 20 21 22 23 24
chain bonds :
2-7 5-9 6-21 7-14
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 8-9 8-13 9-10 10-11 11-12 12-13
19-20 19-24 20-21 21-22 22-23 23-24
exact/norm bonds :
1-2 1-6 2-3 2-7 3-4 4-5 5-6 5-9
exact bonds :
6-21 7-14
normalized bonds :
8-9 8-13 9-10 10-11 11-12 12-13 19-20 19-24 20-21 21-22 22-23
23-24

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:Atom 9:Atom
10:Atom 11:Atom 12:Atom 13:Atom 14:CLASS 17:CLASS 18:CLASS
19:Atom 20:Atom 21:Atom 22:Atom 23:Atom 24:Atom

10/073960

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SAMPLE SCREEN SEARCH COMPLETED -     76 TO ITERATE

100.0% PROCESSED      76 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:          997 TO     2043
PROJECTED ANSWERS:               0 TO        0

L2            0 SEA SSS SAM L1

=> s l1 sss full
FULL SEARCH INITIATED 18:46:12 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -   2053 TO ITERATE

100.0% PROCESSED    2053 ITERATIONS                               4 ANSWERS
SEARCH TIME: 00.00.01

L3            4 SEA SSS FUL L1

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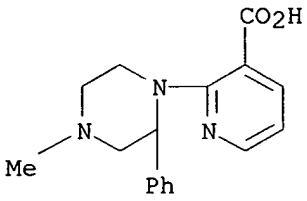
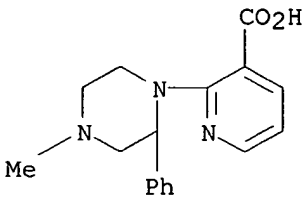
L3 ANSWER 1 OF 4 REGISTRY COPYRIGHT 2002 ACS
RN 457601-25-1 REGISTRY
CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)-, dihydrate (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 1-(3-Carboxy-2-pyridyl)-4-methyl-2-phenylpiperazine dihydrate
MF C17 H19 N3 O2 . 2 H2 O
SR CA
LC STN Files: CA, CAPLUS, CASREACT, USPATFULL
CRN (61338-13-4)



●2 H_2O

1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L3 ANSWER 2 OF 4 REGISTRY COPYRIGHT 2002 ACS
RN 343626-55-1 REGISTRY
CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)-, potassium salt (9CI) (CA INDEX NAME)
MF C17 H19 N3 O2 . K
SR CA
LC STN Files: CA, CAPLUS, USPAT2, USPATFULL
CRN (61338-13-4)



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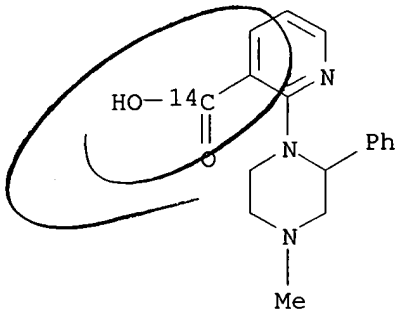
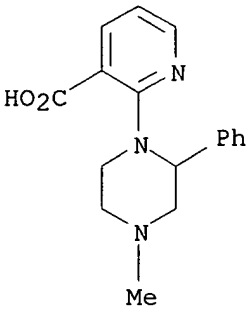
2 REFERENCES IN FILE CA (1962 TO DATE)
2 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L3 ANSWER 3 OF 4 REGISTRY COPYRIGHT 2002 ACS
RN 125967-25-1 REGISTRY
CN 3-Pyridinecarboxylic-14C acid, 2-(4-methyl-2-phenyl-1-piperazinyl)- (9CI) (CA INDEX NAME)
FS 3D CONCORD
MF C17 H19 N3 O2
SR CA
LC STN Files: CA, CAPLUS, CASREACT



1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

L3 ANSWER 4 OF 4 REGISTRY COPYRIGHT 2002 ACS
RN 61338-13-4 REGISTRY
CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 1-(3-Carboxy-2-pyridyl)-4-methyl-2-phenylpiperazine
FS 3D CONCORD
MF C17 H19 N3 O2
CI COM
LC STN Files: BEILSTEIN*, CA, CAPLUS, CASREACT, IFICDB, IFIPAT, IFIUDB, USPAT2, USPATFULL
(*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

6 REFERENCES IN FILE CA (1962 TO DATE)
6 REFERENCES IN FILE CAPLUS (1962 TO DATE)

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LEFT TRUNCATION IGNORED FOR '?HYDRATE?' FOR FILE 'REGISTRY'
             0 HYDRATE?/CSN
L4           0 L3 AND ?HYDRATE?/CSN
Left truncation is not valid in the specified search field in the
specified file.  The term has been searched without left truncation.
Examples: '?TERPEN?' would be searched as 'TERPEN?' and '?FLAVONOID'
would be searched as 'FLAVONOID.'

If you are searching in a field that uses implied proximity, and you
used a truncation symbol after a punctuation mark, the system may
interpret the truncation symbol as being at the beginning of a term.
Implied proximity is used in search fields indexed as single words,
for example, the Basic Index.

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HELP FOR 'FIELD CODES' IS NOT AVAILABLE
For information about help messages available in all files, enter
"HELP MESSAGES".  For information about help messages available for
the current file, enter "HELP DIRECTORY".  For a list of commands,
enter "HELP COMMANDS".

=> file caplus
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                               148.12     148.33

FILE 'CAPLUS' ENTERED AT 18:47:52 ON 17 DEC 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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FILE COVERS 1907 - 17 Dec 2002  VOL 137 ISS 25
FILE LAST UPDATED: 16 Dec 2002  (20021216/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.

CAS roles have been modified effective December 16, 2001. Please
check your SDI profiles to see if they need to be revised. For
information on CAS roles, enter HELP ROLES at an arrow prompt or use
the CAS Roles thesaurus (/RL field) in this file.

=> s l3
L5           7 L3
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=> d l5 1-7 bib abs hitstr

L5 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2002 ACS
AN 2002:695977 CAPLUS
DN 137:216962
TI Methods for the preparation of mirtazapine intermediates
IN Metzger, Leonid; Wizel, Shlomit
PA Teva Pharmaceutical Industries Ltd., Israel; Teva Pharmaceuticals USA, Inc.
SO PCT Int. Appl., 12 pp.
CODEN: PIXXD2
DT Patent
LA English

Apps

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002070513	A1	20020912	WO 2002-US4340	20020214
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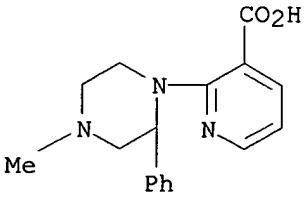
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2002165238	A1	20021107	US 2002-73960	20020214
PRAI US 2001-272699P	P	20010301		

OS CASREACT 137:216962

AB The prepn. of 1-(3-carboxy-2-pyridyl)-4-methyl-2-phenylpiperazine dihydrate (I) and other mirtazapine intermediates are described. These compds. are particularly useful in the prepn. of mirtazapine. Thus, 1-(3-cyano-2-pyridyl)-4-methyl-2-phenylpiperazine was hydrolyzed with aq. KOH, neutralized with HCl and the ppt. washed with water to give I whose crystal structure is reported.

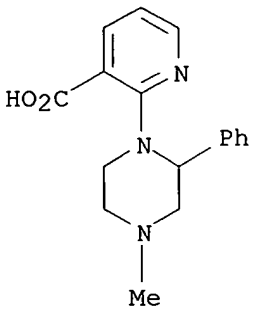
IT **457601-25-1P**, 1-(3-Carboxy-2-pyridyl)-4-methyl-2-phenylpiperazine dihydrate
RL: IMF (Industrial manufacture); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of 1-(3-carboxy-2-pyridyl)-4-methyl-2-phenylpiperazine dihydrate as an intermediate for mirtazapine)

RN 457601-25-1 CAPLUS
CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)-, dihydrate (9CI) (CA INDEX NAME)



2 H_2O

IT **61338-13-4P**, 1-(3-Carboxy-2-pyridyl)-4-methyl-2-phenylpiperazine
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of 1-(3-carboxy-2-pyridyl)-4-methyl-2-phenylpiperazine dihydrate as an intermediate for mirtazapine)
RN 61338-13-4 CAPLUS
CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)- (9CI) (CA INDEX NAME)



RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2002 ACS
AN 2002:368461 CAPLUS
DN 136:369741
TI A novel method for preparation of piperazine and its derivatives
IN Sebastian, Sonny; Patel, Hetal Virendra; Thennati, Rajamannar
PA Sun Pharmaceutical Industries Ltd., India
SO PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002038552	A1	20020516	WO 2001-IN129	20010629
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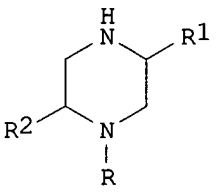
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 2001078669	A5	20020521	AU 2001-78669	20010629
	BE 1013317	A6	20011106	BE 2001-513	20010727
	CH 692342	A	20020515	CH 2001-1428	20010802
	US 2002095038	A1	20020718	US 2001-37309	20011025
PRAI	IN 2000-MU994	A	20001107		
	WO 2001-IN129	W	20010629		

OS CASREACT 136:369741; MARPAT 136:369741
GI



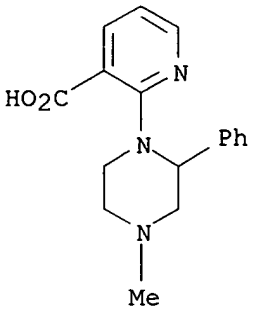
I

AB Compds. I [R = H, C1-6 alkyl, phenyl-C1-4 alkyl; R1 = H, Me, (un)substituted phenyl; R2 = H, Me, fluoromethyl] useful as starting materials for prepn. of pharmaceutically active compds. are prepd. by reacting R1COCO2R with H2NCH2CHR2NHR to give 3,4-dehydropiperazine-2-one and its derivs., followed by reacting with a reducing agent to yield I. Thus, 1-methyl-3-phenylpiperazine was prepd. and used as starting material for prepn. of 1,2,3,4,10,14b-hexahydro-2-methyl-pyrazino[2,1-a]pyrido{2,3-c}[2]benzazepine.

IT **61338-13-4P**
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; prepn. of piperazine derivs. as starting materials for prepn. of pharmaceutically active compds.)

RN 61338-13-4 CAPLUS
CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)- (9CI) (CA

INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2002 ACS
AN 2001:435071 CAPLUS
DN 135:33494
TI Process for the preparation of a pyridinemethanol compound
IN Iishi, Eiichi; Yoshikawa, Kanami
PA Sumika Fine Chemicals Co., Ltd., Japan
SO PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 2

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PI	WO 2001042240	A1	20010614	WO 2000-JP6688	20000928
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	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	WO 2001042239	A1	20010614	WO 2000-JP5384	20000811
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	EP 1238977	A1	20020911	EP 2000-962909	20000928
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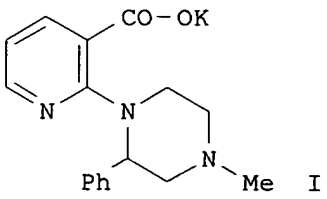
PRAI	JP 1999-353514	A	19991213		
	WO 2000-JP5384	W	20000811		
	WO 2000-JP6688	W	20000928		

OS CASREACT 135:33494
GI



I

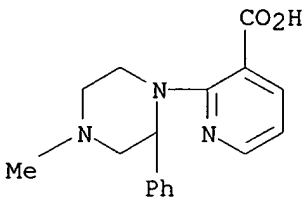
AB A pyridinemethanol compd. useful as an important intermediate for the prepn. of mirtazapine effective as an antidepressant can be prepd. by reducing a potassium salt of pyridinecarboxylic acid as represented by formula I with a metal hydride. Thus, 1-butanol 162, KOH 60.93, and

2-(4-methyl-2-phenylpiperazin-1-yl)pyridine-3-carbonitrile oxalate 40 g were heated to give potassium 2-(4-methyl-2-phenylpiperazin-1-yl)pyridine-3-carboxylate, which was reduced in THF with 12.5 g lithium aluminum hydride to give 21.78 g 2-(4-methyl-2-phenylpiperazin-1-yl)pyridine-3-methanol (yield 70.78%).

IT **343626-55-1P**
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; prepn. of pyridinemethanol compd. as intermediate for mirtazapine)

RN 343626-55-1 CAPLUS

CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)-, potassium salt (9CI) (CA INDEX NAME)

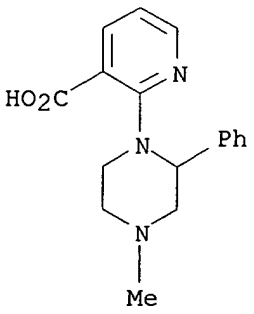


● K

IT **61338-13-4P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of pyridinemethanol compd. as intermediate for mirtazapine)

RN 61338-13-4 CAPLUS

CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)- (9CI) (CA INDEX NAME)



RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2002 ACS
AN 2001:435070 CAPLUS
DN 135:33493
TI Process for the preparation of a pyridinemethanol compound
IN Iishi, Eiichi; Yoshikawa, Kanami
PA Sumika Fine Chemicals Co., Ltd., Japan
SO PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	WO 2001042240	A1	20010614	WO 2000-JP6688	20000928
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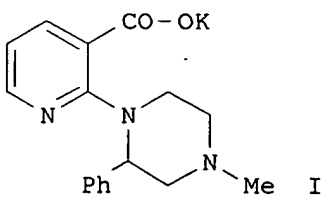
	US 6376668	B1	20020423	US 2000-706803	20001107
	US 2002035255	A1	20020321	US 2001-981919	20011019
	US 6437120	B1	20020820		
PRAI	JP 1999-353514	A	19991213		
	WO 2000-JP5384	W	20000811		
	WO 2000-JP6688	W	20000928		
	US 2000-706803	A3	20001107		

OS CASREACT 135:33493
GI



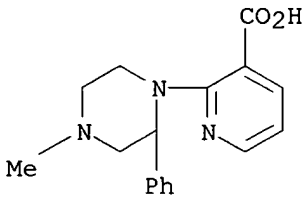
I

AB A pyridinemethanol compd. serving as an important intermediate of mirtazapine useful as antidepressant can be prepd. by reducing a potassium salt of a pyridinecarboxylic acid as represented by formula I with a metal hydride.

IT **343626-55-1P**
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; prepn. of pyridinemethanol compd. as intermediate for mirtazapine)

RN 343626-55-1 CAPLUS

CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)-, potassium salt (9CI) (CA INDEX NAME)

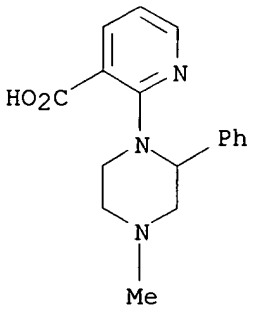


● K

IT **61338-13-4P**
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of pyridinemethanol compd. as intermediate for mirtazapine)

RN 61338-13-4 CAPLUS

CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)- (9CI) (CA INDEX NAME)

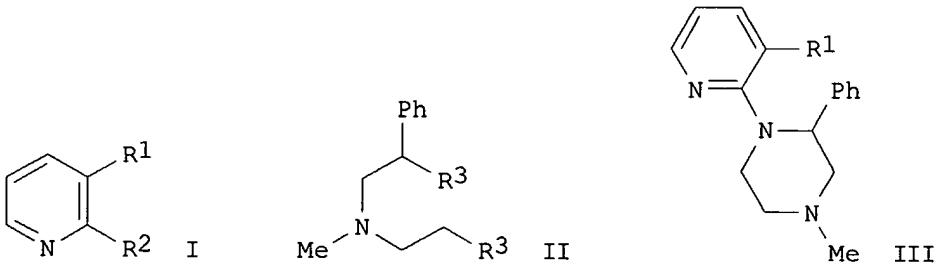


RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2002 ACS
AN 2000:756528 CAPLUS
DN 133:321900
TI Novel synthesis and crystallization of piperazine ring-containing compounds such as mirtazapine
IN Singer, Claude; Liberman, Anita; Finkelstein, Nina
PA Teva Pharmaceutical Industries Ltd., Israel; Teva Pharmaceuticals Usa, Inc.
SO PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

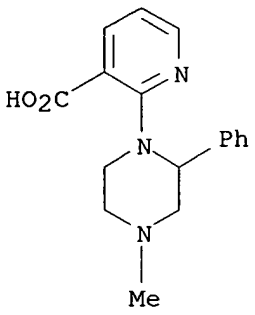
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000062782	A1	20001026	WO 2000-US10357	20000418
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1178805	A1	20020213	EP 2000-923457	20000418
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 2001051718	A1	20011213	US 2001-900646	20010706
PRAI	US 1999-130047P	P	19990419		
	US 2000-552485	A3	20000418		
	WO 2000-US10357	W	20000418		

OS CASREACT 133:321900; MARPAT 133:321900
GI



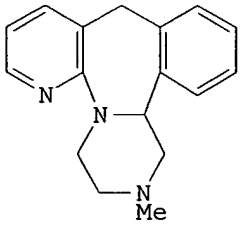
AB Mirtazapine, useful in treating depression (no data), was prepd. by reacting pyridine I [R1 = CH2OH, CH2Cl, CH2Br, CH2I; R2 = NH2] with compd. II [R3 = Cl, F, Br, I] followed by treating the resulting piperazine III with H2SO4. The mirtazapine intermediate 1-(3-carboxypyridly-2)-4-methyl-2-phenylpiperazine may be made by hydrolyzing 1-(3-cyanopyridyl-2)-4-methyl-2-phenylpiperazine with KOH at a temp. of at least about 130.degree.C. The present invention also relates to new processes for recrystn. of mirtazapine form crude mirtazapine.

IT **61338-13-4P**
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(novel synthesis and crystn. of piperazine ring-contg. compds. such as mirtazapine)
RN 61338-13-4 CAPLUS
CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)- (9CI) (CA INDEX NAME)



RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2002 ACS
AN 1990:139001 CAPLUS
DN 112:139001
TI The synthesis of Org 3770 labeled with tritium, carbon-13 and carbon-14
AU Kaspersen, Frans M.; Van Rooij, Fons A. M.; Sperling, Eric G. M.; Wieringa, Joop H.
CS Sci. Dev. Group, Organon Int. BV, Oss, 5340 BH, Neth.
SO Journal of Labelled Compounds and Radiopharmaceuticals (1989), 27(9), 1055-68
CODEN: JLCRD4; ISSN: 0362-4803
DT Journal
LA English
OS CASREACT 112:139001
GI

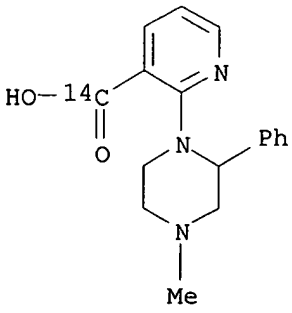


I

AB The syntheses of 1,2,3,4,10,14b-hexahydro-2-methylpyrazino[2,1-a]pyrido[2,3-c][2]benzazepine (Org 3770, I) labeled with 3H (and 2H), 13C and 14C are described. Tritiated I was prepd. either by exchange under alk. conditions with tritiated water or catalytic reductive dehalogenation of a chloro analog with 3H2. 13C-labeled material was obtained in a 7-step synthesis starting from 13C-labeled benzene, whereas I-14C was prepd. in a 3-step synthesis starting with 14CO2.

IT **125967-25-1P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and redn. of)

RN 125967-25-1 CAPLUS
CN 3-Pyridinecarboxylic-14C acid, 2-(4-methyl-2-phenyl-1-piperazinyl)- (9CI) (CA INDEX NAME)



L5 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2002 ACS
AN 1977:29883 CAPLUS
DN 86:29883
TI Heterocyclic tetracyclic compounds
IN Van der Burg, Willem J.
PA AKZO N. V., Neth.
SO Ger. Offen., 40 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2614406	A1	19761014	DE 1976-2614406	19760402
	DE 2614406	C2	19920220		
	NL 7504075	A	19761007	NL 1975-4075	19750405
	NL 189199	B	19920901		
	NL 189199	C	19930201		
	ZA 7601756	A	19770330	ZA 1976-1756	19760323
	AU 7612361	A1	19770929	AU 1976-12361	19760325
	GB 1543171	A	19790328	GB 1976-12270	19760326
	CH 622261	A	19810331	CH 1976-3886	19760329
	DK 7601426	A	19761006	DK 1976-1426	19760330
	DK 142498	B	19801110		
	DK 142498	C	19810706		
	FI 62087	B	19820730	FI 1976-884	19760401
	FI 62087	C	19821110		
	BE 840362	A1	19761004	BE 1976-165832	19760402
	SE 7603931	A	19761006	SE 1976-3931	19760402
	SE 422941	B	19820405		
	SE 422941	C	19820715		
	JP 51122099	A2	19761025	JP 1976-37678	19760402
	JP 59042678	B4	19841016		
	FR 2305986	A1	19761029	FR 1976-9686	19760402
	FR 2305986	B1	19800613		
	ES 446634	A1	19771101	ES 1976-446634	19760402
	CA 1076571	A1	19800429	CA 1976-249439	19760402
	HU 21859	O	19820227	HU 1976-AO437	19760405
	HU 179401	B	19821028		
PRAI	NL 1975-4075		19750405		
	NL 1975-75040		19750405		

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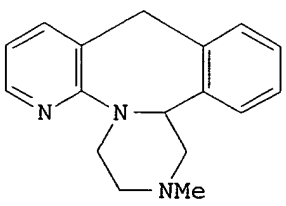

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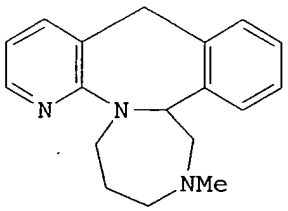


II

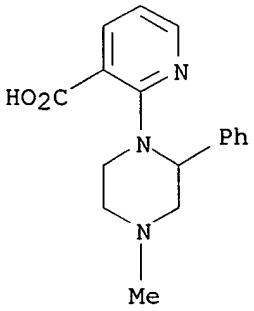
AB The title compds., e.g. I and II, with nervous system-depressant and antihistaminic activities (no data), are prepd. by various procedures. Thus, reaction of 2-chloronicotinonitrile with 1-methyl-3-phenylpiperazine gives 2-(4-methyl-2-phenyl-1-piperazinyl)-3-pyridinecarbonitrile which is

hydrolyzed to the carboxylic acid which is reduced to the hydroxymethyl deriv. (III). Cyclization of 3.25 g III in concd. H2SO4 at 20-35.degree. gives after 2 hr and treatment with NH4OH 2.43 g I.

IT **61338-13-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and redn. of)

RN 61338-13-4 CAPLUS

CN 3-Pyridinecarboxylic acid, 2-(4-methyl-2-phenyl-1-piperazinyl)- (9CI) (CA INDEX NAME)



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